

### **REMARKS**

Favorable reconsideration of this application is requested in view of the above amendments and the following remarks. Claim 1 is amended. The revision to claim 1 is supported, for example, at original claim 3. Claim 3 has been canceled. Claims 10-11 are newly presented. New claims 10-13 are supported for example at original claims 1 and 6-9. Claims 1-13 are pending, with claims 1 and 10 being independent.

#### **Claim rejections - 35 U.S.C. § 103**

Claims 1-7 stand rejected as being unpatentable over U.S. Patent No. 6,487,878 (Meguro) in view of U.S. Patent No. 6,132,279 (Horiuchi). Applicants respectfully traverse this rejection.

Independent claim 1 is directed to a method of manufacturing a discharge tube. The method includes the step of sealing the portion to be the sealing part by heating and softening with a combination of a laser beam and a gas burner, thus forming the sealing part. Immediately before or after a completion of sealing the end of the portion to be the sealing part on the side of the portion to be the discharge part by heating and softening with the laser beam, a region that is adjacent to the heated and softened region of the portion to be the sealing part starts being heated and softened with the gas burner.

This combination of heating by laser beam and heating by gas burner improves production efficiency by providing higher working efficiency and lowering the required output power of the laser beam. *See, e.g.*, page 7, lines 8-23. For example, when just a laser beam is used, the length of irradiation is longer and the longer period of irradiation may cause the evaporation of portions of the sealing part. This may result in a structurally weaker tube and may also cause silica powder to adhere to the surface of the sealing part, which decreases the transparency of the tube. The present invention minimizes the range where the laser beam is used by also using a gas burner, while at the same time obtaining the high accuracy effects of the laser beam.

None of the cited references teach these features. Meguro is directed to a method for manufacturing a discharge tube. However, Meguro does not teach or suggest the combination of heating by laser beam and heating by gas burner as recited in claim 1. Rather Meguro is directed to a method that only uses a laser light to manufacture a discharge tube. Nor is there any

suggestion in Meguro to combine the laser light with a gas burner to obtain the combination of features recited in claim 1.

Horiuchi does not remedy the deficiencies of Meguro. Horiuchi is a manufacturing method of a discharge lamp. However, Horiuchi does not teach or suggest the combination of heating by laser beam and heating by gas burner as recited in claim 1. Instead, Horiuchi discloses heating a portion of the tube with only a burner. Nor is there any suggestion in Horiuchi to combine the burner with a laser beam to obtain the combination of features recited in claim 1.

Neither Meguro nor Horiuchi suggest the combination of heating by laser beam and heating by gas burner as recited in claim 1. Nor would it be obvious to combine the teachings of Meguro with the teachings of Horiuchi because one of ordinary skill in the art at the time of the present invention would believe such a combination to be duplicative. The teachings of Meguro and Horiuchi clearly disclose using either a burner or a laser beam—there is simply no suggestion in those references to utilize both a burner and a laser beam as recited in claim 1. Accordingly, Applicants respectfully submit that claim 1 is allowable over the cited references.

Claims 2 and 4-7 depend from claim 1, and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of its respective base claim, and is believed allowable in its own right. Individual consideration of the dependent claims is respectfully requested.

Claim 8 stands rejected as being unpatentable over Meguro in view of Horiuchi, and further in view of U.S. Patent No. 6,285,130 (Nakagawa). Applicants respectfully traverse this rejection.

Claim 8 depends from claim 1 and is believed allowable for at least the same reasons. Nakagawa does not remedy the deficiencies of Meguro and Horiuchi. Accordingly, Applicants respectfully submit that claim 8 is allowable over the cited references. Applicants do not concede the correctness of this rejection.

Claim 9 stands rejected as being unpatentable over Meguro in view of Horiuchi, and further in view of U.S. Patent No. 6,071,164 (Vollmer). Applicants respectfully traverse this rejection.

Claim 9 depends from claim 1 and is believed allowable for at least the same reasons. Vollmer does not remedy the deficiencies of Meguro and Horiuchi. Accordingly, Applicants

respectfully submit that claim 9 is allowable over the cited references. Applicants do not concede the correctness of this rejection.

Independent claim 10 is directed to a method of manufacturing a discharge tube. The method includes the step of sealing the portion to be the sealing part by heating and softening with a combination of a laser beam and a gas burner, thus forming the sealing part. At least a part of a region to be heated and softened with the laser beam and a part of a region to be heated and softened with the gas burner overlap each other in the portion to be the sealing part.

None of the cited references teach or disclose at least the features of claim 10 recited above. Accordingly, Applicants respectfully submit that claim 10 is allowable over the cited references.


Claims 11-13 depend from claim 10 and are believed allowable for at least the same reasons. Accordingly, Applicants respectfully submit that claims 11-13 are allowable over the cited references.

In view of the above, favorable reconsideration in the form of a notice of allowance is requested.

Respectfully submitted,

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